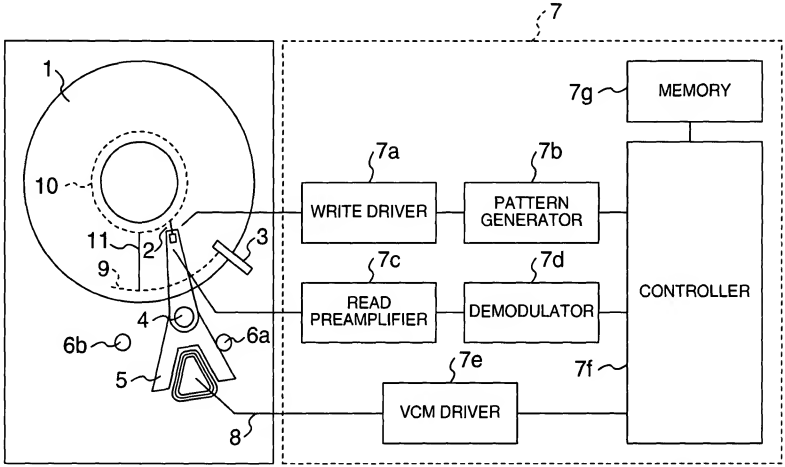
FIG. 1


7
1
10
11
2
3
9
4
6b
6a
5
8
7g
MEMORY
7a
7b
WRITE DRIVER
PATTERN GENERATOR
7c
7d
READ PREAMPLIFIER
DEMODULATOR
CONTROLLER
7e
7f
VCM DRIVER

W 0929

FIG. 2

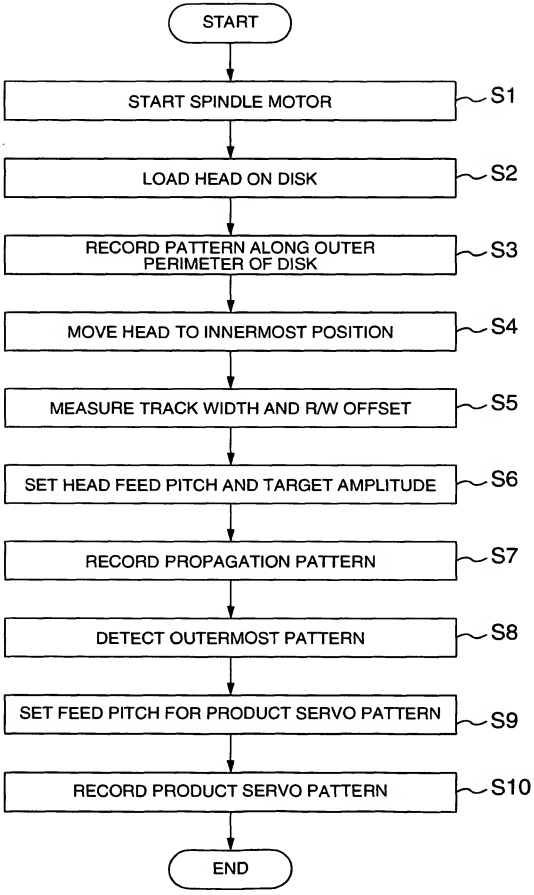

START
START SPINDLE MOTOR
S1
LOAD HEAD ON DISK
S2
RECORD PATTERN ALONG OUTER PERIMETER OF DISK
S3
MOVE HEAD TO INNERMOST POSITION
S4
MEASURE TRACK WIDTH AND R/W OFFSET
S5
SET HEAD FEED PITCH AND TARGET AMPLITUDE
S6
RECORD PROPAGATION PATTERN
S7
DETECT OUTERMOST PATTERN
S8
SET FEED PITCH FOR PRODUCT SERVO PATTERN
S9
RECORD PRODUCT SERVO PATTERN
S10
END

FIG. 3

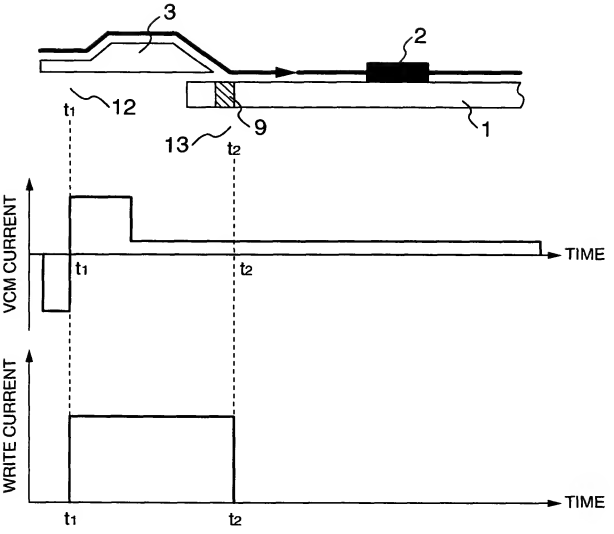

3
2
t1
12
9
1
13
t2
VCM CURRENT
TIME
t1
t2
WRITE CURRENT
TIME
t1
t2

FIG. 4

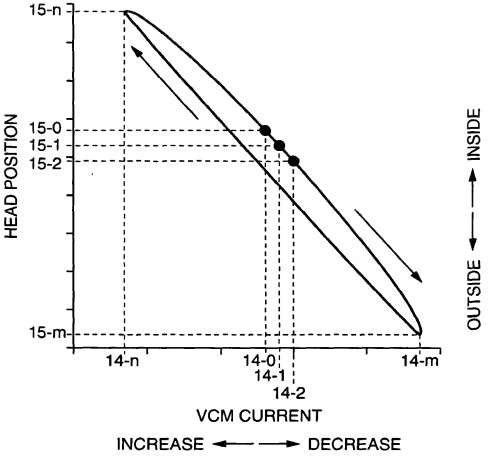

15-n
15-0
15-1
15-2
15-m
HEAD POSITION
OUTSIDE
INSIDE
14-n
14-0
14-1
14-2
14-m
VCM CURRENT
INCREASE
DECREASE

FIG. 5

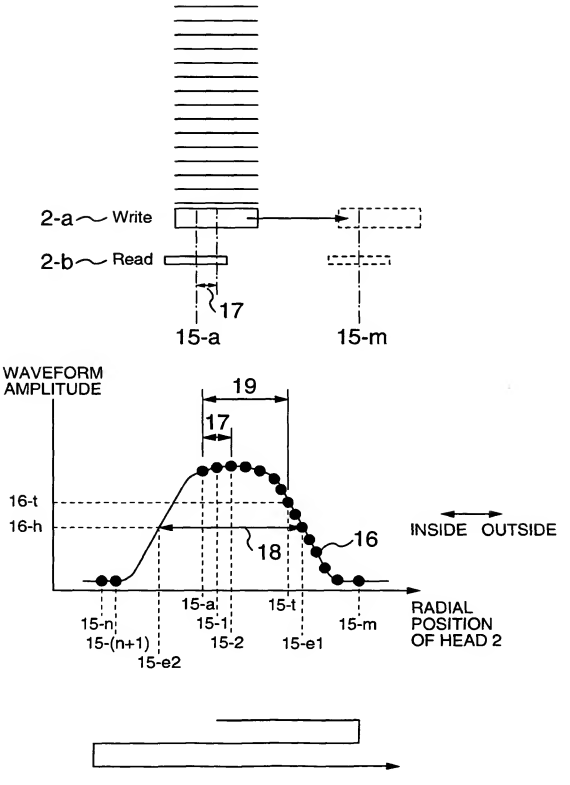

2-a
Write
2-b
Read
17
15-a
15-m
WAVEFORM AMPLITUDE
19
17
16-t
16-h
16
18
INSIDE OUTSIDE
15-n
15-(n+1)
15-e2
15-a
15-1
15-2
15-t
15-e1
15-m
RADIAL POSITION OF HEAD 2

FIG. 6

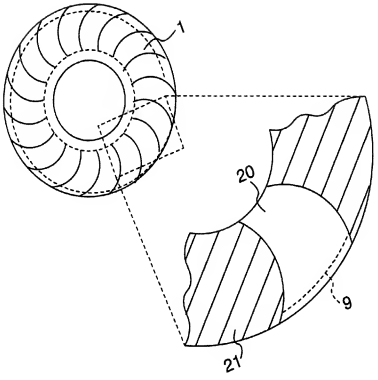


FIG. 7

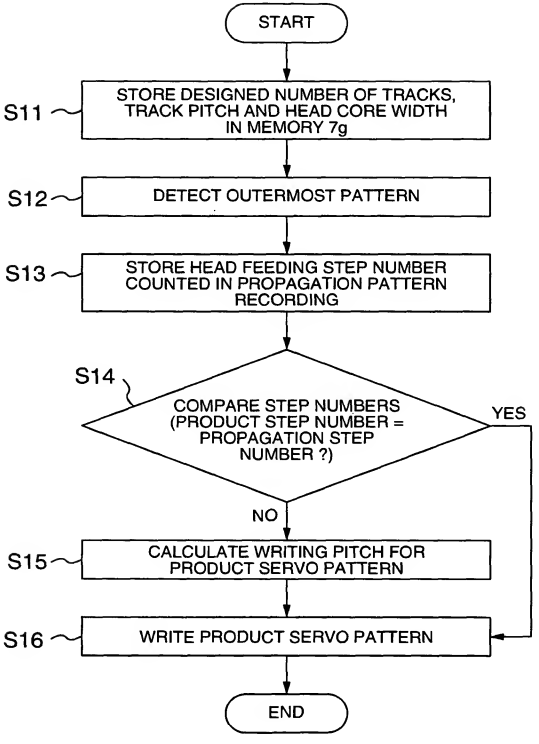

START
S11
STORE DESIGNED NUMBER OF TRACKS, TRACK PITCH AND HEAD CORE WIDTH IN MEMORY 7g
S12
DETECT OUTERMOST PATTERN
S13
STORE HEAD FEEDING STEP NUMBER COUNTED IN PROPAGATION PATTERN RECORDING
S14
COMPARE STEP NUMBERS (PRODUCT STEP NUMBER = PROPAGATION STEP NUMBER ?)
YES
NO
S15
CALCULATE WRITING PITCH FOR PRODUCT SERVO PATTERN
S16
WRITE PRODUCT SERVO PATTERN
END

FIG. 8

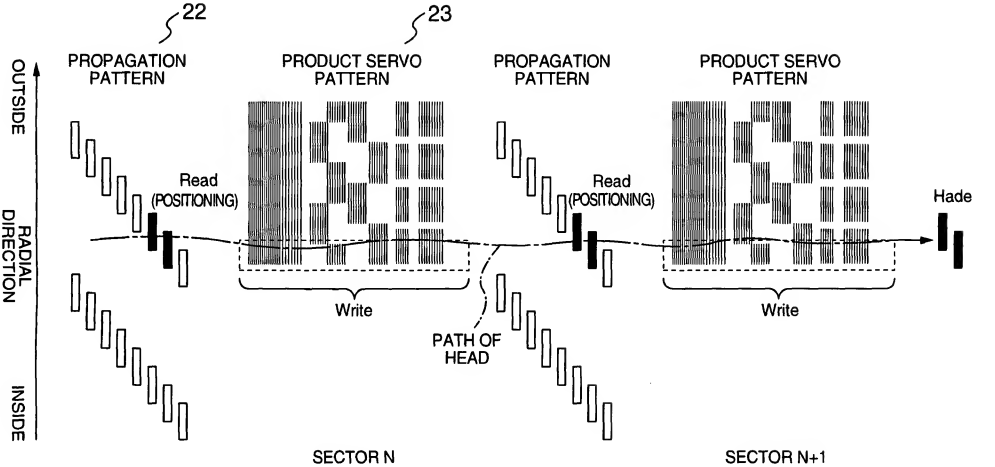

22
23
PROPAGATION PATTERN
PRODUCT SERVO PATTERN
PROPAGATION PATTERN
PRODUCT SERVO PATTERN
OUTSIDE
RADIAL DIRECTION
INSIDE
Read (POSITIONING)
Read (POSITIONING)
Hade
Write
Write
PATH OF HEAD
SECTOR N
SECTOR N+1

FIG. 9

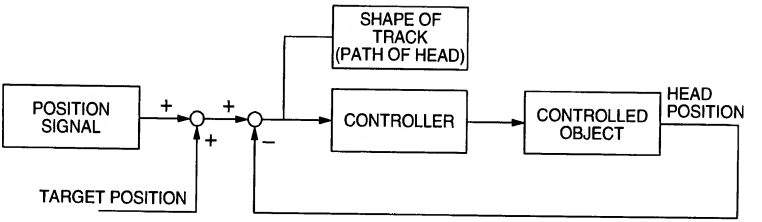

SHAPE OF TRACK (PATH OF HEAD)
POSITION SIGNAL
+
+
+
−
CONTROLLER
CONTROLLED OBJECT
HEAD POSITION
TARGET POSITION

FIG. 10

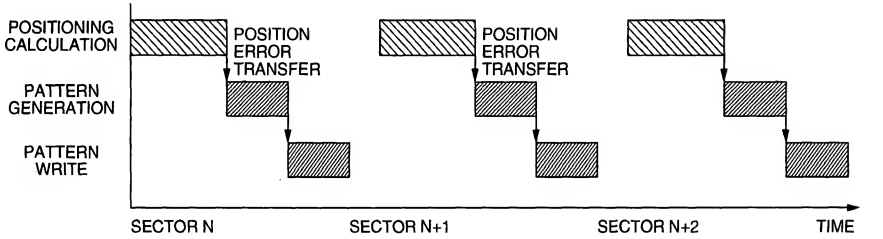
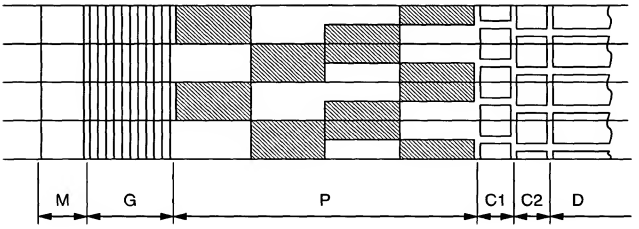

POSITIONING CALCULATION
POSITION ERROR TRANSFER
PATTERN GENERATION
POSITION ERROR TRANSFER
PATTERN WRITE
SECTOR N
SECTOR N+1
SECTOR N+2
TIME

FIG. 11



M: SECTOR MARKER/ SYNCHRONIZATION AREA
G: GRAY CODE AREA
P: POSITION SIGNAL AREA
C1: CORRECTION DATA FOR WRITING
C2: CORRECTION DATA FOR READING
D: DATA AREA